

REMARKS

Entry of this amendment in accordance with the provisions of 37 CFR § 1.114
is respectfully requested.

By the present amendment, minor changes have been made to the specification. No new matter has been added. Claims 1-27 have been cancelled, without prejudice to the Applicants' right to proceed with prosecution of these claims in a Continuation application. In place of the cancelled claims, new claims 28-36 are submitted for examination.

If the Examiner believes that there are any other points which may be clarified or otherwise disposed of either by telephone discussion or by personal interview, the Examiner is invited to contact Applicants' undersigned attorney at the number indicated below.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The changes are shown on the attached pages, the first page of which is captioned "Version With Markings To Show Changes Made."

To the extent necessary, Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of

this paper, including extension of time fees, to the Deposit Account No. 01-2135 (Case No. 520.35237VX3), and please credit any excess fees to such Deposit Account.

Respectfully submitted,

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ATTACHMENT

VERSION WITH MARKINGS TO SHOW CHANGES MADE.

IN THE SPECIFICATION:

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Please replace Paragraph 3, starting on line 19 and bridging page 64 with the following new paragraph:

As described above, in order to improve micro workability of a sample, it is preferable that a plasma generating high frequency electric power source 16 has a higher frequency and discharge under a low gas pressure is stabilized. In the embodiment of the present invention, the pressure processing a sample in the processing chamber is set to 0.5 to 4.0 Pa. By setting the gas pressure in the processing chamber 10 to a low pressure below ~~40 mTorr~~ 4.0 Pa, probability of ion collision in the sheath is decreased. Therefore, in processing a sample 40, directivity of ions is increased and accordingly it becomes possible to perform vertical fine pattern. However, in order to attain the same processing rate under a pressure below ~~5.0.5 Pa~~ mTorr, the exhausting system and the high frequency electric power source become large in size, and dissociation of the processing gas occurs excessively due to increase of electron temperature, as a result, the processing characteristic is likely to be degraded.

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Please replace Paragraph 1, starting on line 8 with the following new paragraph:

In general, between a frequency of a plasma generating electric power source for a pair of electrodes and a minimum gas pressure capable of stably discharging,

there is relationship that the lowest gas pressure for stable discharge is decreased as the frequency of the electric power source is increased and the distance between the electrodes is increased. In order to avoid ill effects such as attaching of deposits onto surrounding walls and onto the discharge confining ring 37 and to effectively perform a function of removing fluorine or oxygen by the upper electrode cover 30, the susceptive cover 39 and the resist in the sample, it is preferable that the distance between the electrodes is set to a value shorter than 50 mm which corresponds to a distance smaller than 25 times of mean-free-path at the maximum gas pressure of 40 mTorr. On the other hand, in order to attain stable discharge, the distance between the electrode is required to be 2 to 4 time (4 mm to 8 mm) or larger of the mean-free-path at the maximum gas pressure (40-mTorr)4.0Pa.